Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-19. (Canceled)

20. (Currently Amended) A silicon single crystal produced according to Czochralski method using a melt in contact with a quartz crucible, to which Ga (gallium) is added as a dopant that controls resistivity of the crystal in a range of 5 Ω·cm to 0.1 Ω·cm, wherein a diameter of the single crystal is 4 inches or more, and the single crystal is used for a solar cell.

21. (Currently Amended) A silicon single crystal produced according to Czochralski method using a melt in contact with a quartz crucible, to which Ga is added as a dopant that controls resistivity of the crystal, wherein concentration of Ga in the crystal is 5×10^{17} atoms/cm^3 to 3×10^{15} atoms/cm^3, a diameter of the single crystal is 4 inches or more, and the silicon single crystal is used for a solar cell.

22. (Previously Presented) The silicon single crystal to which Ga is added according to Claim 20, wherein concentration of interstitial oxygen in the silicon single crystal is 20×10^{17} atoms/cm^3 (ASTM'79) or less.

23. (Canceled)

24. (Previously Presented) A silicon single crystal wafer produced according to the Czochralski method to which Ga is added as a dopant that controls resistivity of the crystal, wherein the silicon single crystal wafer is produced by slicing the silicon single crystal according to Claim 20.

25-26. (Canceled)

27. (Previously Presented) A silicon single crystal solar cell produced using the silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to Claim 20.

28. (Previously Presented) A silicon single crystal solar cell produced using the silicon single crystal wafer to which Ga is added as a dopant that controls resistivity of the crystal according to Claim 24.

29. (Previously Presented) The silicon single crystal solar cell according to Claim 27, wherein the area of the solar cell is 100 cm^2 or more.

30. (Previously Presented) The silicon single crystal solar cell according to Claim 27, wherein a conversion efficiency is 20% or more.

31. (Previously Presented) The silicon single crystal solar cell according to Claim 29, wherein a conversion efficiency is 20% or more.

32. (Previously Presented) The silicon single crystal solar cell according to Claim 27, wherein the silicon single crystal solar cell is for space use.

33. (Previously Presented) The silicon single crystal solar cell according to Claim 27, wherein loss of overall conversion efficiency due to photo-degradation is 0.5 % or less.

34. (Previously Presented) The silicon single crystal solar cell according to Claim 29, wherein loss of overall conversion efficiency due to photo-degradation is 0.5 % or less.

35. (Previously Presented) The silicon single crystal solar cell according to Claim 30, wherein loss of overall conversion efficiency due to photo-degradation is 0.5 % or less.

36. (Previously Presented) The silicon single crystal solar cell according to Claim 32, wherein loss of overall conversion efficiency due to photo-degradation is 0.5 % or less.

37. (Currently Amended) A method for production of silicon single crystal to which Ga is added according to Czochralski method as a dopant that controls resistivity of the crystal, wherein Ga is added in a silicon melt in ~~a~~ contact with quartz crucible, a seed crystal

is brought into contact with the silicon melt and is pulled with rotation to grow a silicon single crystal ingot having resistivity controlled by the Ga in a range of 5 Ω·cm to 0.1 Ω·cm and having a diameter of 4 inches or more used for a solar cell.

38. (Currently Amended) The method for production of silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to Claim 37, wherein addition of Ga to a melt in ~~a~~ contact with the quartz crucible is conducted by growing a silicon crystal ingot in which Ga of high concentration is added previously, and crushing the silicon crystal ingot to prepare a doping agent, and adding Ga in the silicon melt using the doping agent.

39. (Currently Amended) The method for production of silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to Claim 37, wherein the rate of rotation of ~~a~~ the quartz crucible while the silicon single crystal ingot is grown is 30 rpm or less.

40. (Previously Presented) The method for production of silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to Claim 37, wherein a pressure in a furnace of a pulling apparatus while the silicon single crystal is grown is in the range of 10 to 500 mbar.

41. (Previously Presented) The method for production of silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to Claim 37, wherein a flow of inert gas in a furnace of a pulling apparatus while the silicon single crystal is grown is in the range of 10 to 500 l/min.

42. (Previously Presented) The method for production of silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to Claim 37,

wherein an inert gas flown in the furnace of the pulling apparatus while the silicon single crystal is grown is argon.

43. (Currently Amended) The silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to ~~claim~~ Claim 20, wherein the resistivity of the silicon single crystal is 5 Ω·cm to 0.2 Ω·cm.

44. (Currently Amended) The silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to ~~claim~~ Claim 21, wherein the resistivity of the silicon single crystal is 5 Ω·cm to 0.2 Ω·cm.

45. (Currently Amended) The method for production of silicon single crystal to which Ga is added as a dopant that controls resistivity of the crystal according to ~~claim~~ Claim 37, wherein the resistivity of the silicon single crystal is 5 Ω·cm to 0.2 Ω·cm.

46. (Currently Amended) A method for producing a solar cell comprising:

making a solar cell from a wafer wherein the wafer has been produced by

manufacturing a silicon single crystal according to Czochralski method using a melt in contact with a quartz crucible, wherein

Ga (gallium) is added as a dopant that controls resistivity of the crystal,

boron is not added as a dopant that controls resistivity of the crystal,

the silicon single crystal has a resistivity controlled by the Ga in the range of from 5 Ω·cm to 0.1 Ω·cm, and

the diameter of the single crystal is 4 inches or more; and

processing the silicon single crystal to obtain the silicon single crystal wafer.

47. (Currently Amended) A method for producing a solar cell comprising:

making a solar cell from a wafer wherein the wafer has been produced by

manufacturing a silicon single crystal according to Czochralski method using a melt in

contact with a quartz crucible, wherein

Ga (gallium) is added as a dopant that controls resistivity of the crystal,

boron is not added as a dopant that controls resistivity of the crystal,

the concentration of Ga in the silicon single crystal is in the range from 5×10^{17} atoms/cm^3 to 3×10^{15} atoms/cm^3, and

the diameter of the single crystal is 4 inches or more; and

processing the silicon single crystal to obtain the silicon single crystal wafer.

48. (Currently Amended) A solar cell comprising a wafer having a diameter of 4 inches or more, manufactured from a silicon single crystal produced according to Czochralski method using a melt in contact with a quartz crucible, wherein

Ga (gallium) is added as a dopant that controls resistivity of the crystal,

boron is not added as a dopant that controls resistivity of the crystal, and

the silicon single crystal has a resistivity in the range of from 5 Ω·cm to 0.1 Ω·cm.

49. (Currently Amended) A solar cell comprising a wafer having a diameter of 4 inches or more, manufactured from a silicon single crystal according to Czochralski method using a melt in contact with a quartz crucible, wherein

Ga (gallium) is added as a dopant that controls resistivity of the crystal,

boron is not added as a dopant that controls resistivity of the crystal, and

the concentration of Ga in the silicon single crystal is in the range from

5×10^{17} atoms/cm^3 to 3×10^{15} atoms/cm^3.

50. (New) A process for generating photovoltaic energy, comprising subjecting the silicon single crystal solar cell according to Claim 27 to light irradiation in air.

51. (New) A process for generating photovoltaic energy, comprising subjecting the silicon single crystal solar cell according to Claim 29 to light irradiation in air.

52. (New) A process for generating photovoltaic energy, comprising processing the silicon single crystal according to Claim 21 to produce a solar cell and subjecting the solar cell to light irradiation in air.

53. (New) A process for generating photovoltaic energy, comprising subjecting a solar cell produced by the method according to Claim 46 to light irradiation in air.

54. (New) A process for generating photovoltaic energy, comprising subjecting the a solar cell produced by the method according to Claim 47 to light irradiation in air.

55. (New) A process for generating photovoltaic energy, comprising subjecting a solar cell according to Claim 48 to light irradiation in air.

56. (New) A process for generating photovoltaic energy, comprising subjecting a solar cell according to Claim 49 to light irradiation in air.

57. (New) A process for generating photovoltaic energy, comprising:

manufacturing a silicon single crystal according to Czochralski method using a melt in contact with a quartz crucible, wherein

Ga (gallium) is added as a dopant that controls resistivity of the crystal,

boron is not added as a dopant that controls resistivity of the crystal,

the silicon single crystal has a resistivity controlled by the Ga in the range of from 5 Ω·cm to 0.1 Ω·cm, and

the diameter of the single crystal is 4 inches or more;

processing the silicon single crystal to obtain a silicon single crystal wafer;

fabricating a solar cell from the silicon single crystal wafer; and

subjecting the solar cell to light irradiation to produce photovoltaic energy.

58. (New) A process for generating photovoltaic energy, comprising:

manufacturing a silicon single crystal according to Czochralski method using a melt in contact with a quartz crucible, wherein

Ga (gallium) is added as a dopant that controls resistivity of the crystal,

boron is not added as a dopant that controls resistivity of the crystal,

the concentration of Ga in the silicon single crystal is in the range from 5×10^{17} atoms/cm^3 to 3×10^{15} atoms/cm^3, and

the diameter of the single crystal is 4 inches or more;

processing the silicon single crystal to obtain a silicon single crystal wafer;

fabricating a solar cell from the silicon single crystal wafer; and

subjecting the solar cell to light irradiation to produce photovoltaic energy.

59. (New) The process for generating photovoltaic energy according to Claim 57, wherein subjecting the solar cell to light irradiation to produce photovoltaic energy is conducted in air.

60. (New) The process for generating photovoltaic energy according to Claim 58, wherein subjecting the solar cell to light irradiation to produce photovoltaic energy is conducted in air.